

## ABO AND RH BLOOD GROUP DISTRIBUTION AMONG COLLEGE GIRLS OF WASHIM DISTRICT, MAHARASHTRA, INDIA

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### Abstract

This paper deals with the distribution of ABO and Rh blood groups among the college girls of Washim district of Indian state Maharashtra. The gene frequencies were calculated by Hardy-Weinberg principle. The phenotypic frequency of blood group O was found highest (49%). Whereas the phenotypic frequency of blood groups A (36%), B (09%) and AB was found lowest (6%) respectively. The phenotypic frequency of Rh +ve type blood group was found (96%) while Rh -ve type blood group was found (04%).

**Keywords:** Blood group, College, Distribution, Girls, Washim.

### Introduction

In the present paper, we studied the distribution of ABO and Rh blood group among the college girls of Washim district of Indian state Maharashtra. Washim district is located in the western region of Vidharbha (20.1390° N, 77.1025° E). Akola lies to its north, Amravati lies to its north-east, Hingoli lies to its south, Buldhana lies to its west, Yavatmal lies to its east. River Penganga is the main river of the district. It flows through the Tehsil of Risod. Later it flows through the boundary of Washim and Hingoli districts. River Kas is the main tributary of Penganga. River Kas meets Penganga about 1 km from the village of Shelgaon Rajgure. River Arunavati and its tributaries originates in the Tehsil of Washim and them flows through the tehsils of Mangrul Pir and Manora into the district of Yavatmal. River Katepurna originates in the hilly areas of the district and flows northwards through the tehsil of Malegaon and enters the Akola district. The climate of this district is characterized by a hot summer, well-distributed rainfall during the south-west monsoon season and generally dry weather during the rest of the year. The average annual rainfall in the district is 796.6 mm (31.37"). Temperature recorded between 18<sup>0</sup>C to 47<sup>0</sup>C (Washim Gazetteer, 2021-22).

### Materials and methods

At the basic level, Blood samples of 500 volunteers were collected during 2021-22. These blood samples were collected in to EDTA vials from college girls residing in Washim district. All samples were tested for the ABO and Rh blood groups using anti - A, B, and D sera. Gene frequencies were calculated by Hardy-Weinberg principle (1908).

### Results and Discussion

The distribution of the ABO and Rh blood groups among the college girls of Washim district is shown in the table 1. Blood group ABO\*O predominated in distribution with the highest frequency (49%)

followed by blood group ABO\*A (36%) and blood group ABO\*B (09%). The frequency of allele ABO\*A was very high (0.36) as compared to ABO\*B (0.09). The frequency of allele Rh +ve blood group was found to be (0.96) while it was observed to be (0.04) of Rh +ve blood. Warghat *et al.* (2011) was reported very high frequency of allele ABO\*B but it is observed to be less than the frequency of allele ABO\*A in present study. Also the frequency of Rh (Rhesus) blood group of participants was almost similar Kunbis of Amravati district as reported by Warghat *et al.* (2011). The frequency of Rh (Rhesus) blood group of North Indian population shows almost similar frequency with population of Maharashtra state. The genetic similarity of various populations is well established (Sahoo, *et al.* 2005, Bhasin 2009, Warghat *et al.* 2011, Joshi *et al.*, 2013; Gulhane and Charjan 2022).

### Conclusion

So taking into account the few markers, we should not read too much but some pattern are clear that signature of social force still persist in the genome of cast and tribes of India. In coming years the selection of more markers and typing using DNA marker will provide better insight into the genetic landscape of Indian population.

**Table 1: Distribution of the ABO and Rh blood groups and their allele frequencies among college girls**

Blood Group	Phenotypic frequency	Allelic frequency
<b>A</b>	36 %	0.36
<b>B</b>	09 %	0.09
<b>AB</b>	06 %	0.06
<b>O</b>	49 %	0.49
<b>Rh Factor</b>		
<b>+ve</b>	96 %	0.96
<b>-ve</b>	04 %	0.04

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### References

1. Bhasin M.K. (2009). Morphology to molecular Anthropology: Castes and Tribes of India. *Int J Hum Genet*; 3-4:145-230.
2. Gulhane V. R. and A. P. Charjan (2022). Changes in haemoglobin during menstruation among college girls from Washim District, Maharashtra, India. *EICICTS*:15
3. Hardy G. H. and W. Weinberg. (1908). How to calculate Allelic and Genotypic frequency: In *Life Science – Fundamental and Practices, Vol.- I* By Pranav Kumar and U. Mina, Pub. By Pathfinder Publication (2010) pp.556.
4. Joshi P. S., Borkar S. B., Tantarapale V. T. and K. M. Kulkarni (2013). ABO and Rh Blood group distribution among Brahmin population of Buldhana District, Maharashtra, India. *GEPIS*: 16-17.
5. Joshi P.S., Tantarapale V.T. and K.M. Kulkarni (2013): Fishing methods commonly employed in Buldhana District and Neighbourhood, Maharashtra state, India. *Bioscience Discovery*. 4 (1): 54-57.
6. Sahoo S. and V. K. Kashyap. (2005). Influence of language and ancestry on genetic structure of contiguous population: A microsatellite based study on populations of Orissa. *BMC Genetics*; Doi: 10.1186/1471 pp. 1256-1264.
7. Warghat N.E., N.R. Sharma, M.M. Baig (2011) ABO and Rh Blood Group distribution among Kunbis (Maratha) population of Amravati District, Maharashtra-India *Asiatic Journal of Biotechnology Resources*; 2(04)479-483
8. Washim Gazetteer (2021-22). Database of Washim District redirected from official website of Washim District (M.S.), India, [www.washim.nic.in](http://www.washim.nic.in).